

Spatial assignment of test sample

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Input

Website Identifier: 294

Isotope values of test sample

Table 1: Isotope values of test sample

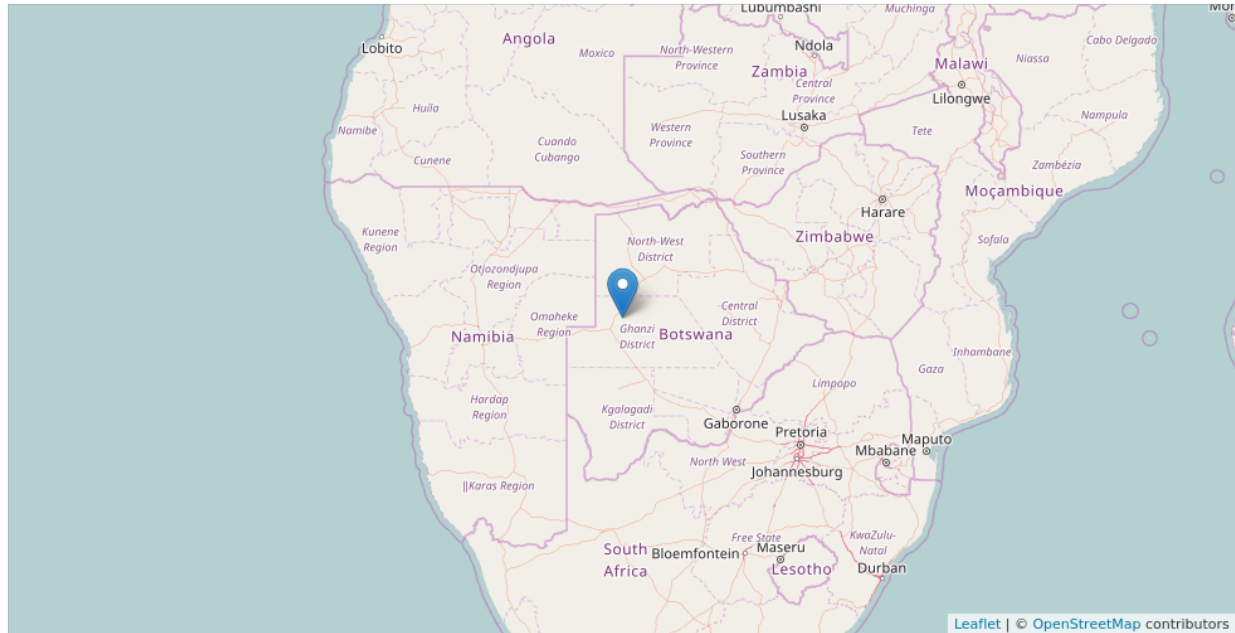
13C/12C	15N/14N	18O/16O	2H/1H	34S/32S
-21	10.9	17.6	-34.4	13.6

Output

Model

```
##
## Call:
## train.kknn(formula = fmla, data = ivory.train, kmax = 15, distance = 2, kernel = knl)
##
## Type of response variable: nominal
## Minimal misclassification: 0.3765867
## Best kernel: triangular
## Best k: 15
Classifier: country_code
```

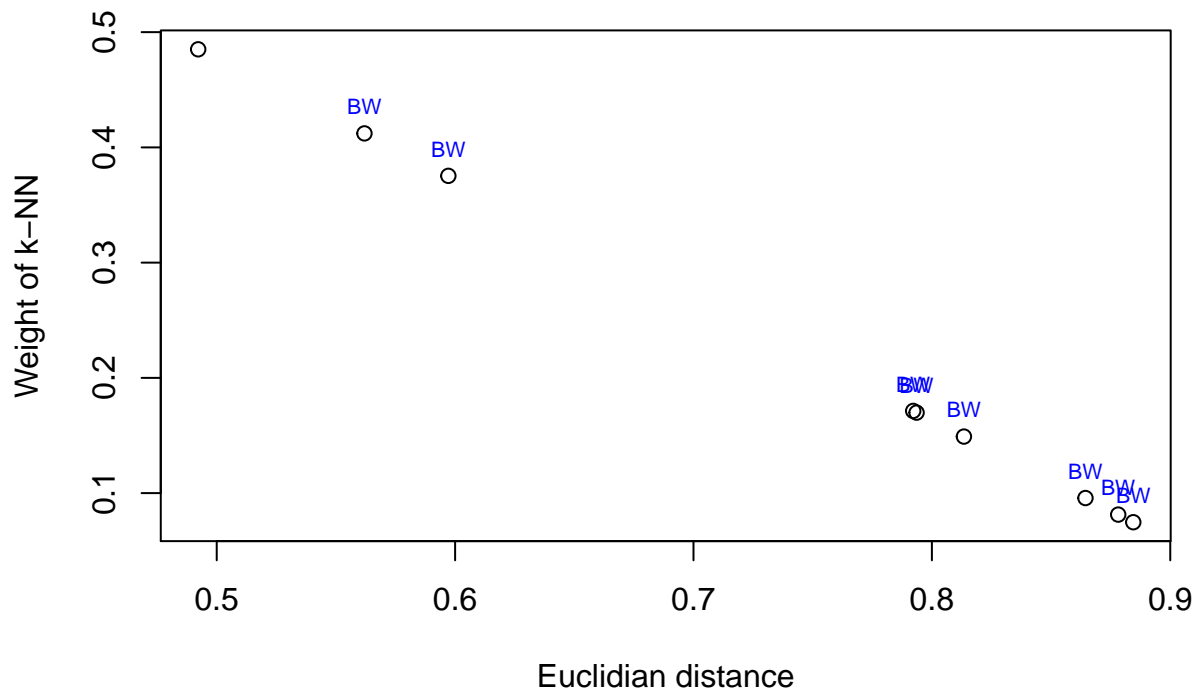
Map of best fitted reference sample



Best fitted reference sample:

- Site: Botswana, Ghanzi area
- Country: BW
- Region: Southern Africa
- CITES: Appendix II
- Lat: -21.72
- Lon: 21.93

Assignment of test sample to nearest neighbours



Best fitted reference entries

Table 2: Details of best fitted reference entry (row 1) and other fitted entries within best classifier

lon	lat	location	13C/12C	15N/14N	18O/16O	2H/1H	34S/32S
21.93	-21.72	Botswana, Ghanzi area	-20.9	10.0	17.9	-35.0	13.9
23.34	-19.80	Botswana, Maun area	-20.3	10.9	17.9	-37.0	12.5
23.34	-19.80	Botswana, Maun area	-20.3	11.1	17.7	-37.2	14.9
28.91	-22.20	Botswana, Mathathane area	-19.9	10.9	17.5	-29.9	12.4
23.34	-19.80	Botswana, Maun area	-21.8	11.1	18.6	-37.0	14.9
27.73	-21.89	Botswana, Mmadinare area	-21.1	10.3	17.1	-27.2	12.8
25.13	-17.84	Botswana, Kasane / Chobe area	-21.0	10.1	16.7	-40.1	12.5
21.92	-21.72	Botswana, Ghanzi area	-20.5	11.1	17.8	-42.9	12.8
28.42	-22.00	Botswana, Bobonong area	-22.0	9.6	17.2	-34.2	12.9

Country of prediction: BW

Testing robustness of assignment: Wilcoxon signed rank test

If p-value > 0.05, the test concludes that the isotope signature of the test sample is similar to the respective nearest neighbour reference sample.

P-values for the k nearest neighbours in Wilcoxon Test

“0.53255, 0.40049, 0.14562, 0.13370, 0.11207, 0.09322, 0.00790, 0.00160, 0.00052”

Goodness of fit of test sample:

- good fit: if $p > 0.05$ for at least two tested nearest neighbour reference samples;
- moderate fit: if $p > 0.05$ for at least one tested nearest neighbour reference samples;
- uncertain: if $p > 0.05$ for none of the tested nearest neighbour reference samples.

Assumption: At least two nearest reference samples are available.

Overall goodness of fit of test sample: “**good fit**”